

User Manual

Revision 1.002
English

Modbus Master/Slave - Datalogger

(Order Code: HD67324-B2-U-232-2GB)

(Order Code: HD67324-B2-U-485-2GB)

CAN - Datalogger

(Order Code: HD67324-B2-U-CAN-2GB)

For Website information:

www.adfweb.com?Product=HD67324

For Price information:

www.adfweb.com?Price=HD67324-B2-U-232-2GB

www.adfweb.com?Price=HD67324-B2-U-485-2GB

www.adfweb.com?Price=HD67324-B2-U-CAN-2GB

Benefits and Main Features:

- ▶ Very easy to use
- ▶ Low cost
- ▶ Free updating to lifetime
- ▶ Power supply of 8...24V AC or 8...35V DC
- ▶ Isolated RS232/RS485/CAN port
- ▶ Industrial temperature range:
-20°C / 70°C (-4°F / 158°F)



HD67234-B2-U-xxx-2GB

For other M-Bus products:

See also the following link:

Converter M-Bus to

www.adfweb.com?Product=HD67021 (RS232)

www.adfweb.com?Product=HD67022 (RS485)

www.adfweb.com?Product=HD67030 (Ethernet)

Extender and Repeater, M-Bus

www.adfweb.com?Product=HD67032

Gateway M-Bus / Modbus RTU

www.adfweb.com?Product=HD67029M-232 (on RS232)

www.adfweb.com?Product=HD67029M-485 (on RS485)

Gateway M-Bus / Modbus TCP

www.adfweb.com?Product=HD67044M

Gateway M-Bus / CANopen

www.adfweb.com?Product=HD67051

Gateway M-Bus / PROFIBUS

www.adfweb.com?Product=HD67053M

Do you have an your customer protocol?

See the following link:

www.adfweb.com?Product=HD67003

Do you need to choose a device? do you want help?

Ask it to the following link:

www.adfweb.com?Cmd=helpme

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UPDATED DOCUMENTATION:

Dear customer, we thank you for your attention and we remind you that you need to check that the following document is:

- Updated
- Related to the product you own

To obtain the most recently updated document, note the "document code" that appears at the top right-hand corner of each page of this document.

With this "Document Code" go to web page www.adfweb.com/download/ and search for the corresponding code on the page. Click on the proper "Document Code" and download the updates.

To obtain the updated documentation for the product that you own, note the "Document Code" (Abbreviated written "Doc. Code" on the label on the product) and download the updated from our web site www.adfweb.com/download/

REVISION LIST:

Revision	Date	Author	Chapter	Description
1.000	26/08/2011	Fl	All	Software changed (v1.000)
1.001	28/05/2012	Dp	All	Revision
1.002	07/02/2013	Nt	All	Added new chapters
1.003	20/05/2013	Fl	All	Add USB driver location

WARNING:

ADFweb.com reserves the right to change information in this manual about our product without warning.

ADFweb.com is not responsible for any error this manual may contain.

TRADEMARKS:

All trademarks mentioned in this document belong to their respective owners.

SECURITY ALERT:**GENERAL INFORMATION**

To ensure safe operation, the device must be operated according to the instructions in the manual. When using the device are required for each individual application, legal and safety regulation. The same applies also when using accessories.

INTENDED USE

Machines and systems must be designed so the faulty conditions do not lead to a dangerous situation for the operator (i.e. independent limit switches, mechanical interlocks, etc.).

QUALIFIED PERSONNEL

The device can be used only by qualified personnel, strictly in accordance with the specifications.

Qualified personnel are persons who are familiar with the installation, assembly, commissioning and operation of this equipment and who have appropriate qualifications for their job.

RESIDUAL RISKS

The device is state of the art and is safe. The instrument can represent a potential hazard if they are inappropriately installed and operated by personnel untrained. These instructions refer to residual risks with the following symbol:



This symbol indicates that non-observance of the safety instructions is danger for people to serious injury or death and / or the possibility of damage.

CE CONFORMITY

The declaration is made by us. You can send an email to support@adfweb.com or give us a call if you need it.

INTRODUCTION:

The Datalogger is a powerful, flexible and economic instrument that can be used with systems based on Modbus 232, Modbus 485 or CAN. The instrument is composed of the following: module hardware with a RS232 or RS485 or CAN, USB interface that connects to a personal computer and a free software for MS Windows.

THE HARDWARE:

The model of "Datalogger B2-U-xxx-2GB" can be used with the SW67324 using the USB to connect to the PC.

The B2 value indicate the kind of box and the dimension of the device: B2.

The U value indicates the communication port for the software connection and re-programming of the board: U for USB.

The xxx value shows the port to which the device is connected: 485 for RS485, 232 for RS232.

The 2GB value shows the dimension of the memory of the unit: 2Gb.

THE SOFTWARE:

To obtain the software please go to <http://www.adfweb.com/home/download/download.asp> (This manual is referenced to the last version of the software present on our web site). The software works with MSWindows (MS 2000, XP).

CHARACTERISTICS:

This product has the following characteristics:

- Electrical isolation for bus (RS232, RS485 or CAN) connection;
- Mountable on Rail DIN;
- Power Supply 8...24V AC or 8...35V DC;
- Temperature range -20°C to 70°C.

INSTALLATION:

Extract the file downloaded from our web site and follow the procedure to install the software.

USB DRIVER:

The driver for the USB port can be found in the installation folder of SW67324, under the folder "Extras". Usually the path is the following:
C:\<Program Files>\ADFweb\Datalogger_SW67324\Extras

USE OF SW67324 DATALOGGER:

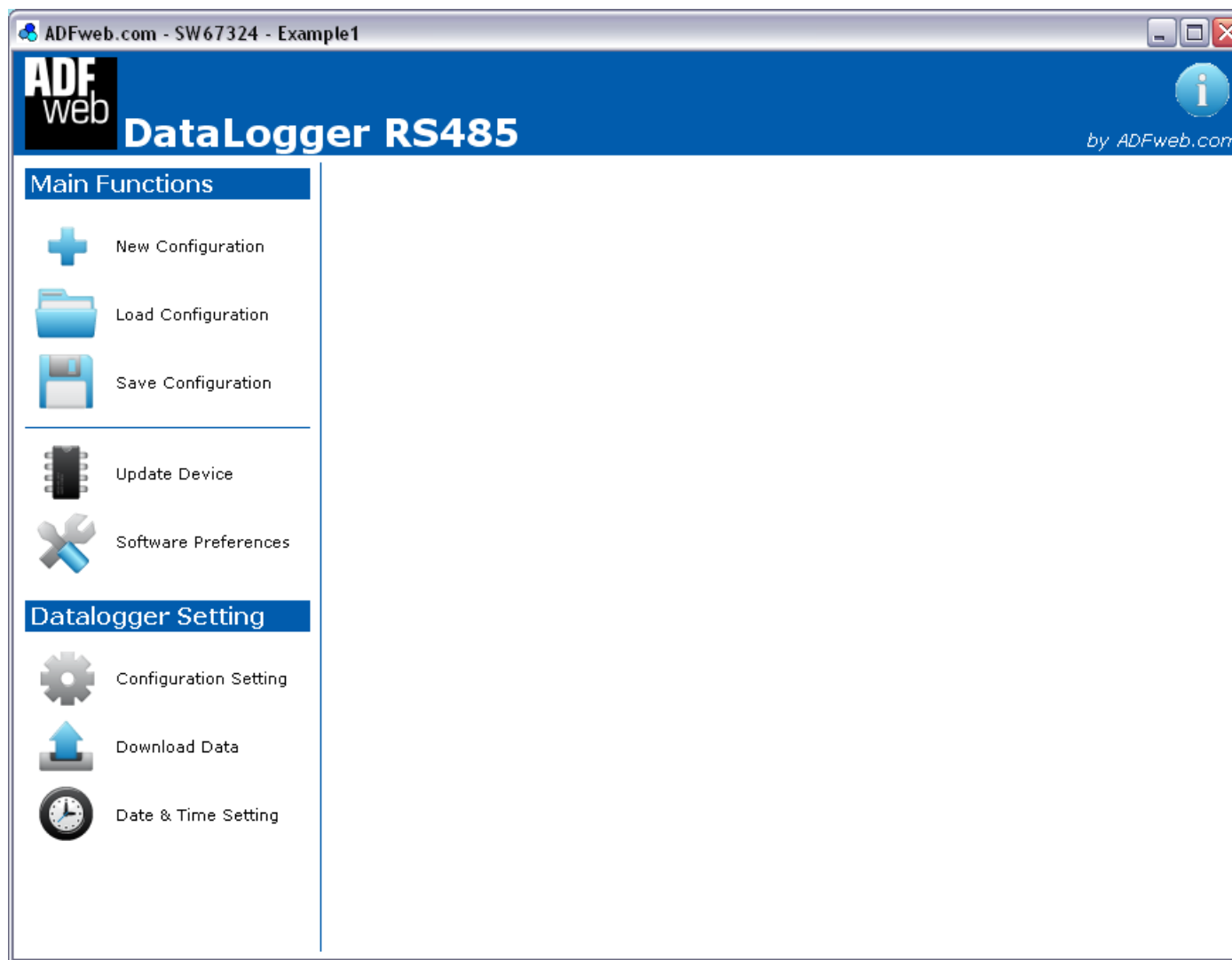
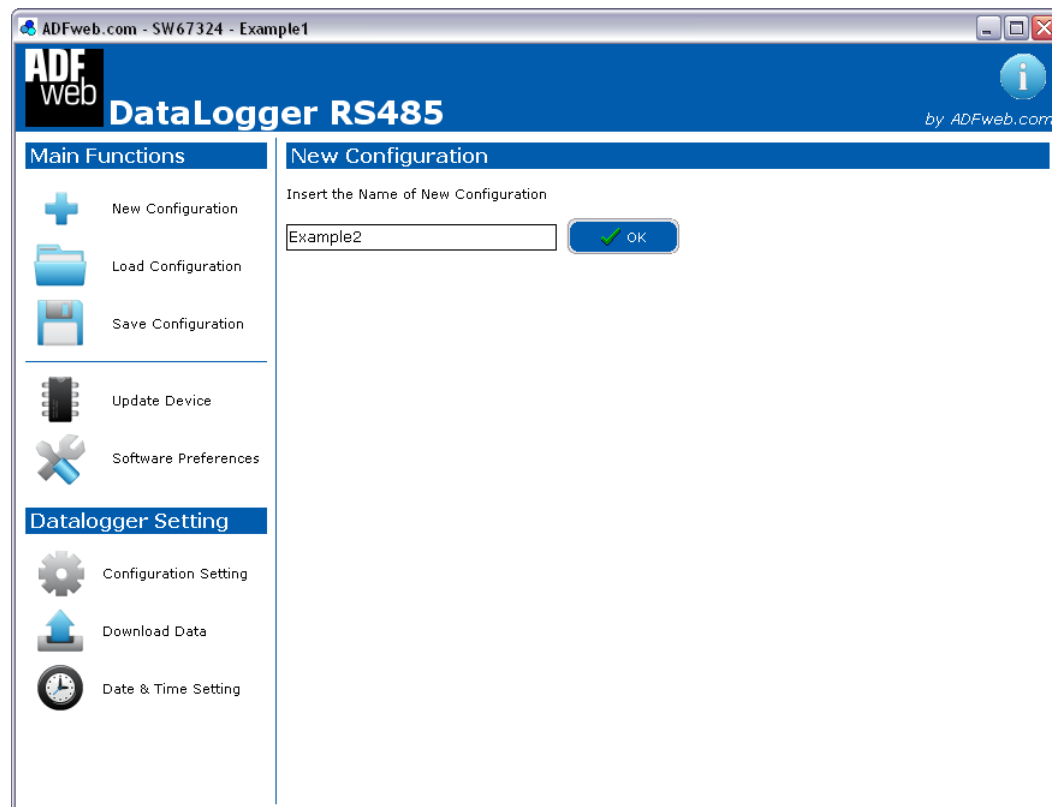


Figure 1: Main window for SW67324

NEW CONFIGURATION:

By pressing the “**New Configuration**” button it is possible to create a new project assigning the name in the field near the button “**OK**” that is used for create it.

Figure 2: “New Configuration” window

LOAD CONFIGURATION:

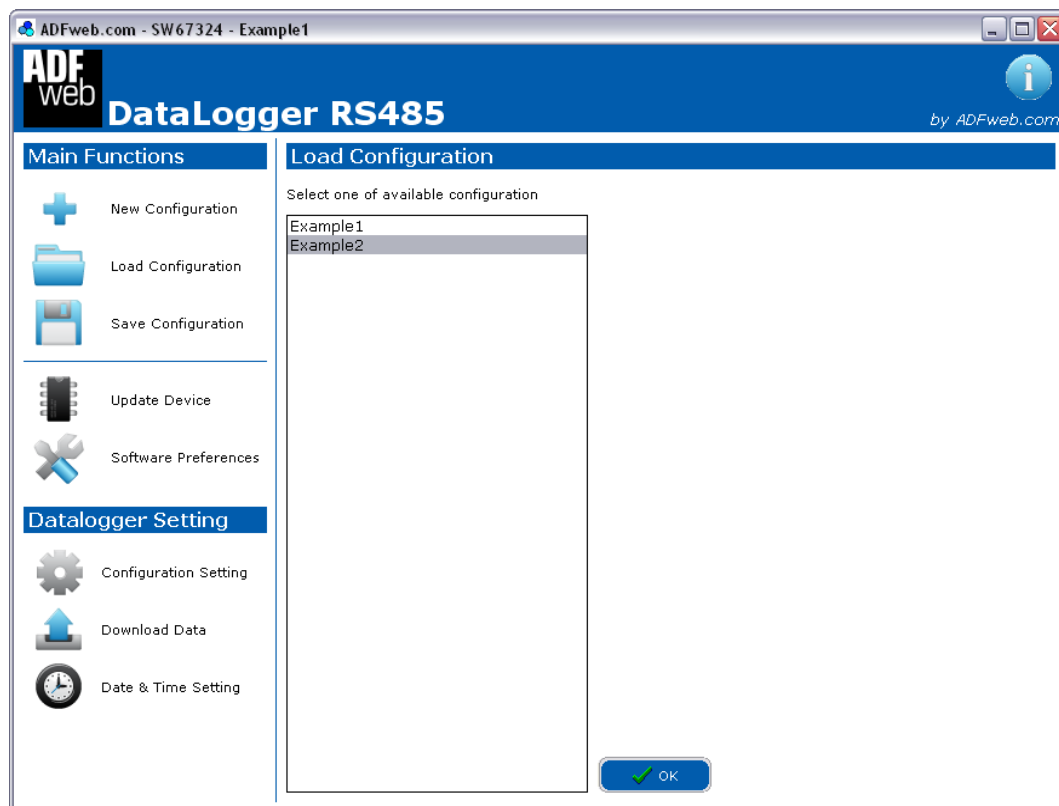


Figure 3: "Load Configuration" window

By pressing the "**Load Configuration**" button it is possible to load an existing project by selecting one of the list that appears.

A device configuration can also be imported or exported:

- To clone the configurations of a DataLogger RS485 in order to configure another device in the same manner, it is necessary to maintain the folder and all its contents;
- To clone a project in order to obtain a different version of the project, it is sufficient to duplicate the project folder with another name and open the new folder with the button "**Load Configuration**".

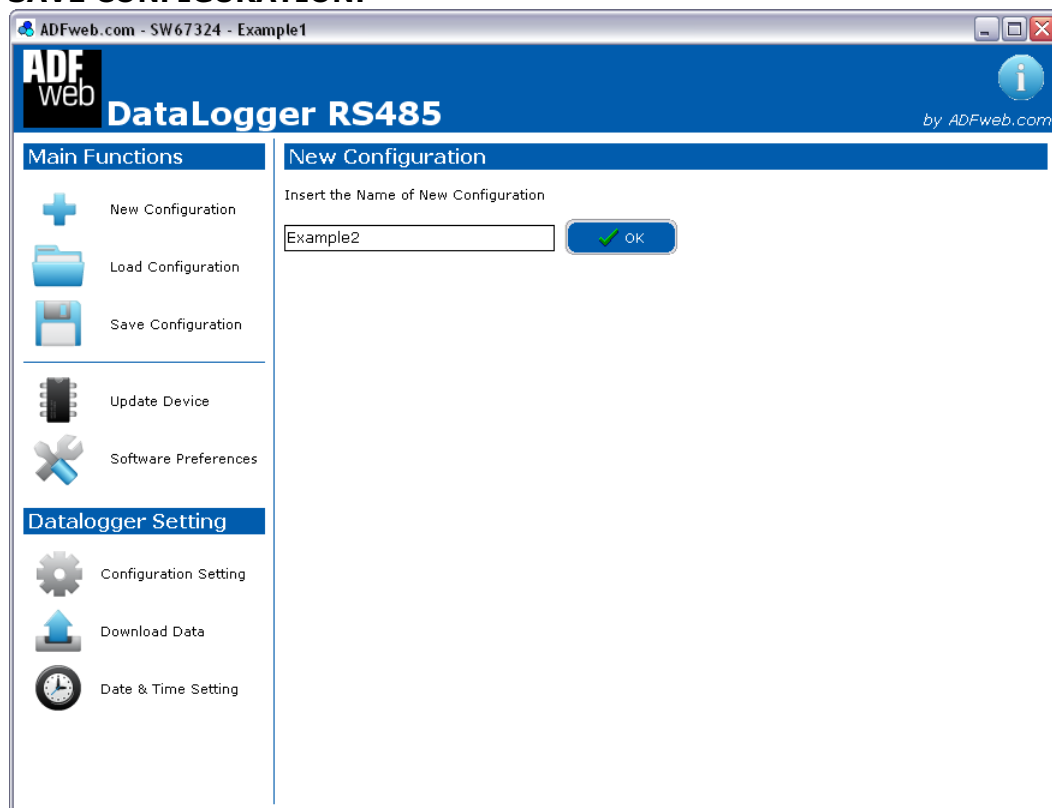
SAVE CONFIGURATION:

Figure 4: "Save Configuration" window

By pressing the "**Save Configuration**" button it is possible to save the project.

There are two possibilities: or save the current configuration, by pressing the button "**Save**"; or save with a new name by pressing the button "**Save As...**" and writing the name in the field above the button.

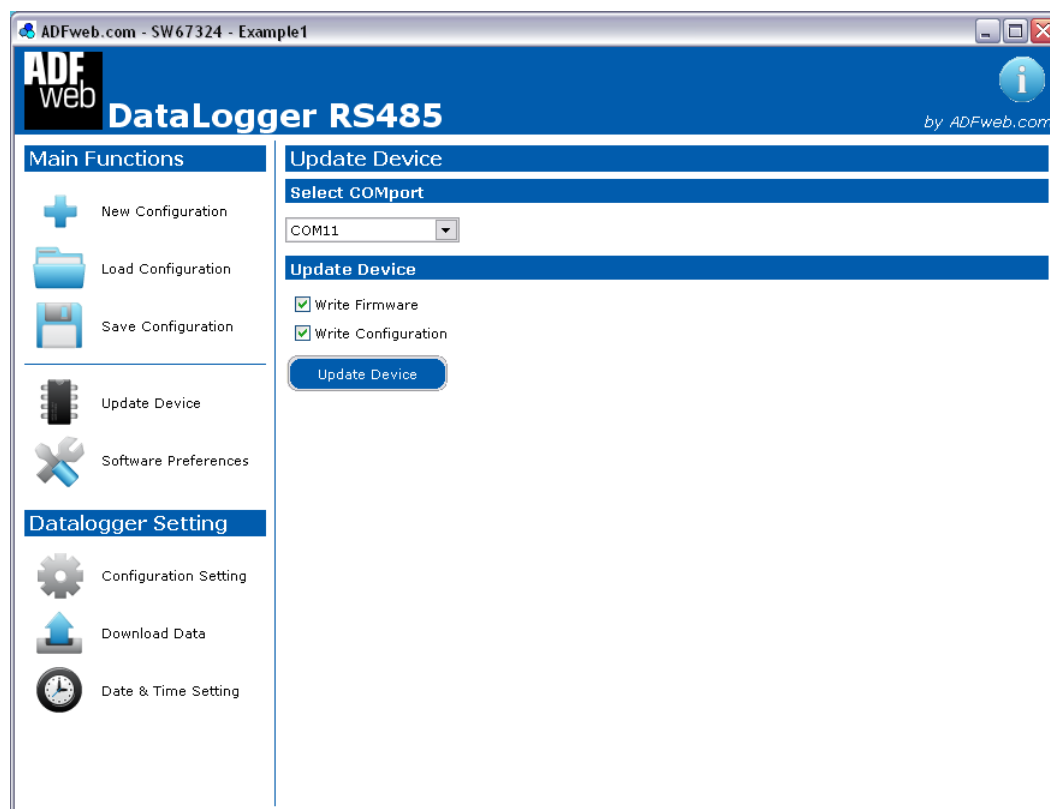


Figure 5: "Update Device" window

UPDATE DEVICE:

By pressing the "**Update Device**" button it is possible to load the created Configuration into the device; and also the Firmware, if is necessary.

For doing this follow these instructions:

- Connect the USB cable from the PC to the device;
- Select the COM port;
- Select which operations you want to do. You can select only "**Write Firmware**", only "**Write Configuration**" or both of them;
- Press the "**Update Device**" button to start the upload.

When all operations are "OK" the Configuration/Firmware on the device is correctly updated.

For the updating, the device must be on Boot Mode. This modality is self-managed by the SW67324. So when you press the "Update Device" button the device is automatically put on Boot Mode and when it have complete the operations is put on Normal Mode.

However if the device doesn't go to Boot Mode automatically it is necessary to act on the 'Dip-Switch A' (see 'FUNCTION MODES' section for found the correct Dip) and it is necessary to follow these instructions:

- Put the device at Boot Mode by Dip1 of 'Dip-Switch A';
- Turn On the device;
- Check the LEDs. LED1 and LED3 must blink quickly;
- Connect the USB cable from the PC to the device;
- Select the COM port;
- Select which operations you want to do. You can select only "**Write Firmware**", only "**Write Configuration**" or both of them;
- Press the "**Update Device**" button to start the upload;
- When all operations are "OK" put the device at Normal Mode by Dip2 of 'Dip-Switch A'.

At this point the Configuration/Firmware on the device is correctly updated.



Note:

When you install a new version of the software it is better if the first time you do the update of the Firmware in the HD67324-B2-U-xxx-2GB device.



Warning:

If the update isn't completed with success, before require assistance try these points:

- Check if the serial COM port selected is the correct one;
- Check if the Cable is connected between the PC and the device;
- Try to repeat the operations for the updating;
- Try to use another USB port;
- Try to restart the PC;
- Try with another PC.



In the case of HD67324-B2-U-xxx-2GB you have to use the software "SW67324":

www.adfweb.com/download/filefold/SW67324.zip.



Note:

For the updating of Firmware/Project it isn't necessary to use the external Power Supply, the one given by USB is sufficient.

SOFTWARE PREFERENCES:

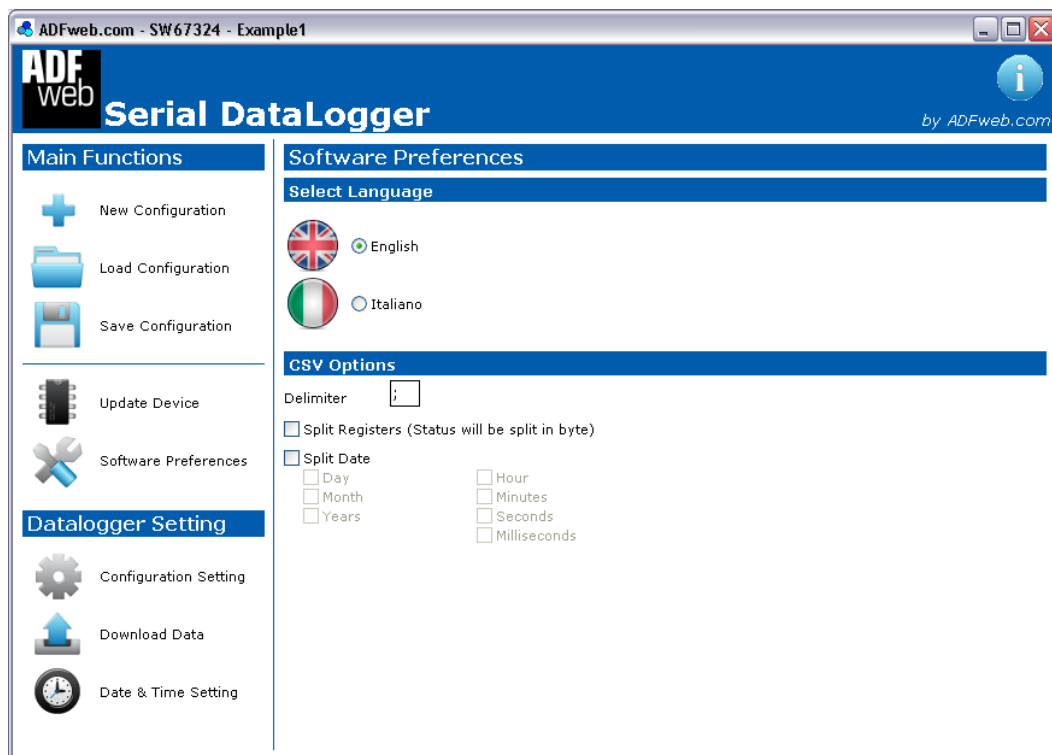


Figure 7: "Software Preferences" window

By pressing the "**Software Preferences**" button it is possible to select the preferences of the software SW67324.

SELECT LANGUAGE

In this section is possible to select the language of the software.

CSV OPTIONS

In this section is possible to select the options of the CSV file.

In the field "**Delimiter**" the character to split the fields in CSV file is defined.

If the field "**Split Register (Status will be split in byte)**" is checked, the data of the modbus registers are splitted per registers.

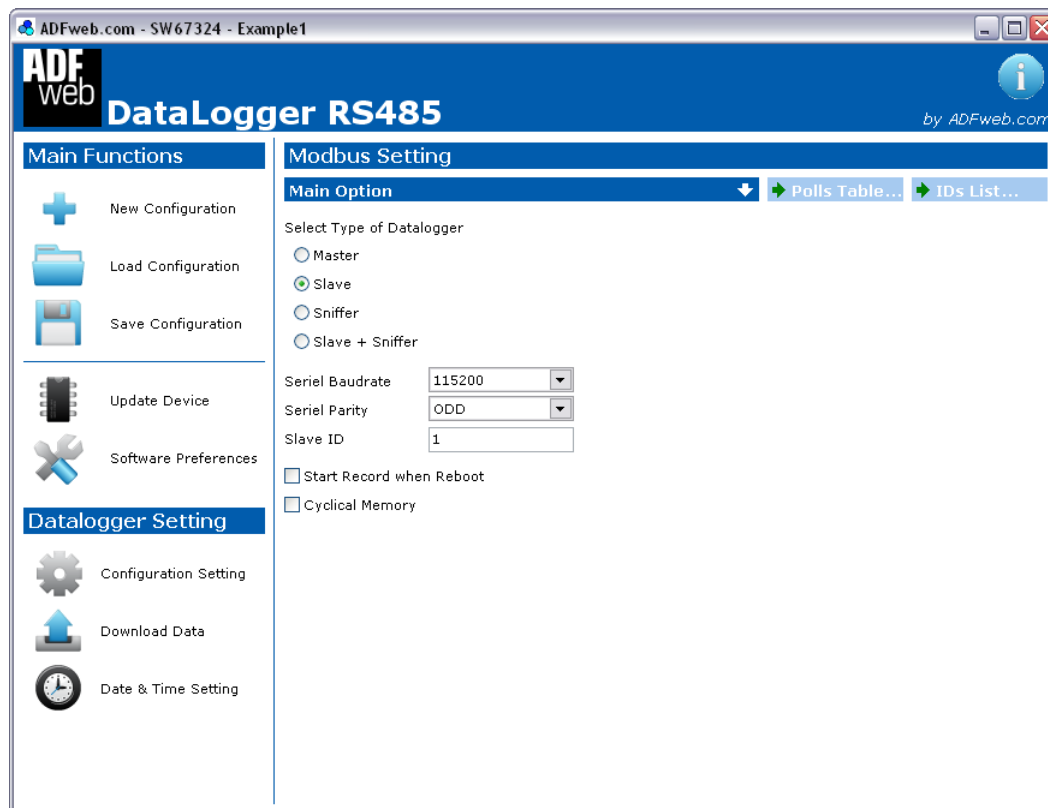
If the field "**Split Date**" is checked, the date and time of the data are splitted. It is possible to select the parts of the date and time to insert in CSV file, the fields selectable are:

Day, Month, Year, Hour, Minutes, Seconds and Milliseconds.

CONFIGURATION SETTING:

By pressing the "**Configuration Setting**" button it is possible to configure the various informations that the DataLogger wants for functioning.

MAIN OPTION



The DataLogger can function as '**Master**', '**Slave**', '**Sniffer**' or '**Slave + Sniffer**'.

Like "**Master**" is the device that makes the requests for read the Coil Status, Input Status, Holding Register and Input Register. The Field "Slave ID" isn't present with this mode.

Like "**Slave**" the device records all frames addressed to it. It answer with an exception if a master makes a Read Request, and answer correctly if a master makes a Write Request. The Field "Slave ID" is present with this mode.

Like "**Sniffer**" the device records all frames that pass in the line. The Field "Slave ID" isn't present with this mode.

Like "**Slave+Sniffer**" the device records all frames that pass in the line. And more, it answer with an exception if a master makes a Read Request, and answer correctly if a master makes a Write Request. The Field "Slave ID" is present with this mode.

In the field "**Serial Baudrate**" the Baudrate of the serial line is defined.

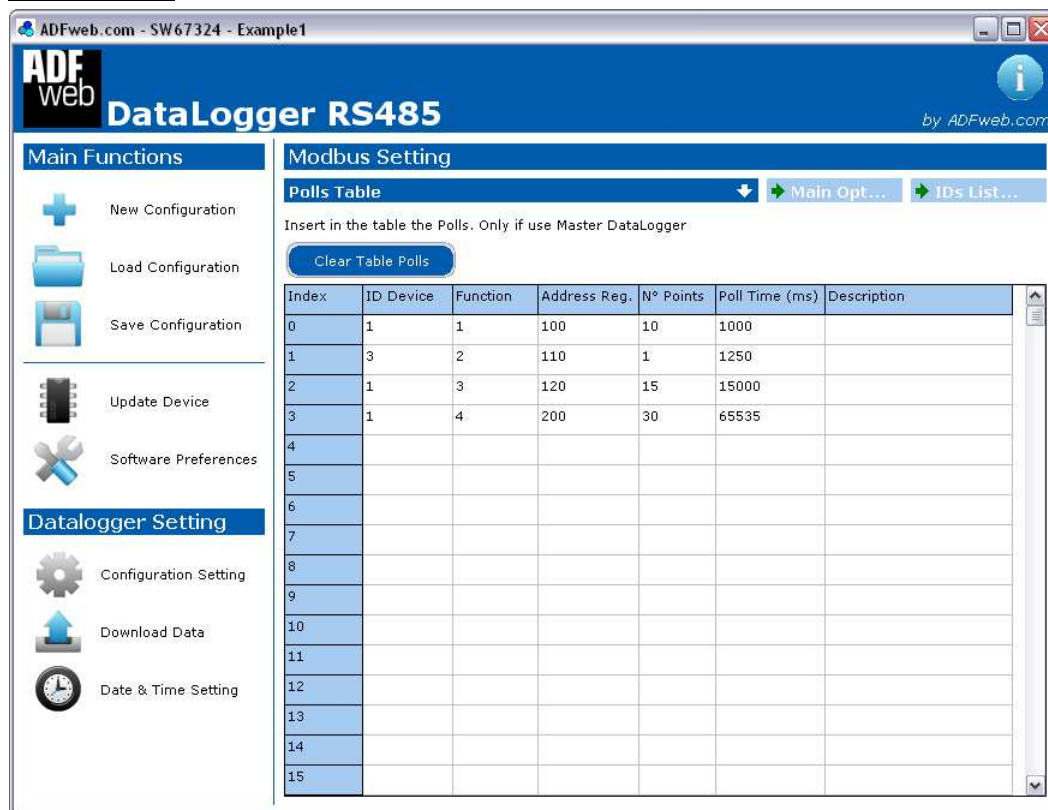
In the field "**Serial Parity**" the parity of the serial line is defined.

In the field "**Slave ID**" the id of the DataLogger, in the case of 'Slave' and 'Slave+Sniffer', is defined.

If the field "**Start Record when Reboot**" is checked the DataLogger starts automatically to record data (when is in Normal Mode). Otherwise it is necessary to give the Start/Stop commands manually, by the software.

If the field "**Cyclical Memory**" is checked the DataLogger when finish the memory restart to save the data from the beginning. Otherwise, if the field isn't checked, when the memory is full the messages aren't stored and the Led1 blinks very slowly.

POLLS TABLE



The screenshot shows the ADFweb DataLogger RS485 interface. The left sidebar contains 'Main Functions' (New Configuration, Load Configuration, Save Configuration, Update Device, Software Preferences) and 'Datalogger Setting' (Configuration Setting, Download Data, Date & Time Setting). The main area is titled 'Modbus Setting' and 'Polls Table'. It includes a 'Clear Table Polls' button and a table with the following data:

Index	ID Device	Function	Address Reg.	N° Points	Poll Time (ms)	Description
0	1	1	100	10	1000	
1	3	2	110	1	1250	
2	1	3	120	15	15000	
3	1	4	200	30	65535	
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

This section is used only if the Datalogger is set like 'Master'.

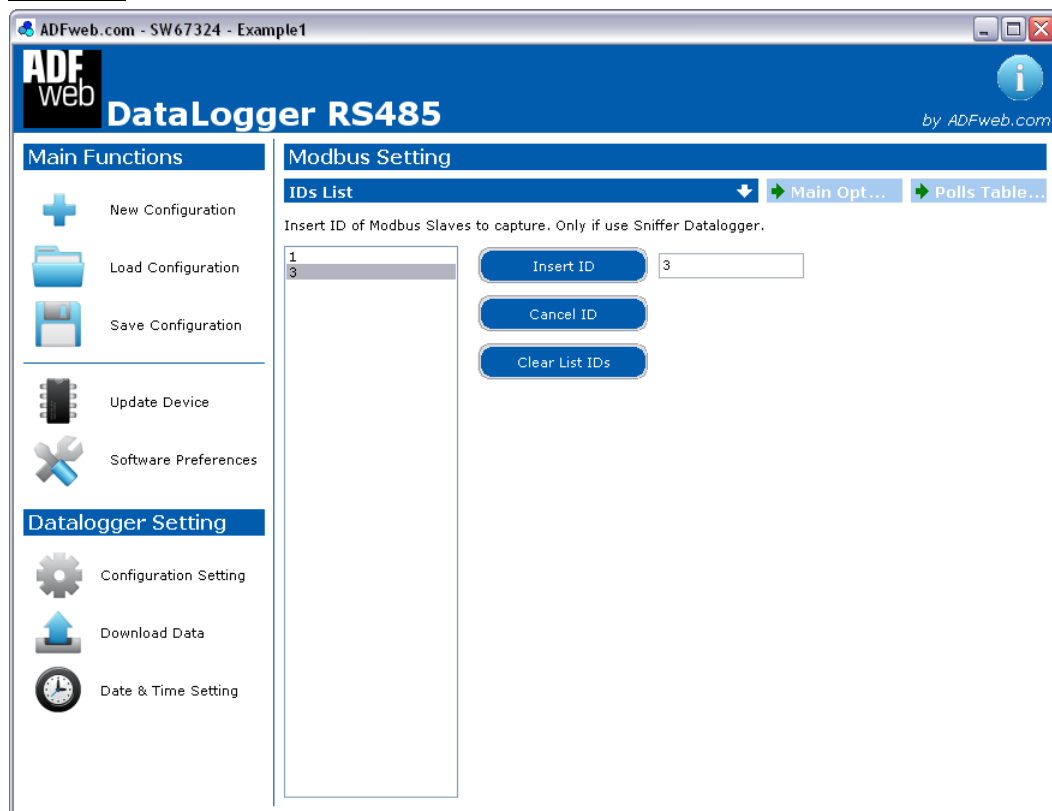
In the table the various requests that the DataLogger sends are defined.

The fields to compile are:

- **"ID Device"**: is the ID of the slave device to which the request will be made;
- **"Function"**: is the type of request used. It is possible to define 1: Coil Status, 2: Input Status, 3: Holding Register, 4: Input Register;
- **"Address Reg."**: is the starting address of the registers to be required;
- **"N° Points"**: is the number of consecutive registers to be required;
- **"Poll Time [ms]"**: is the time between to polls of the row;
- **"Description"**: in this field it is possible to insert a short description of the request.

It is possible to define up to 1024 different requests.

IDs LIST



The screenshot shows the ADFweb DataLogger RS485 web interface. The browser title is "ADFweb.com - SW67324 - Example1". The interface has a blue header with the ADFweb logo and "DataLogger RS485" text. On the left, there are two main menu sections: "Main Functions" with options like "New Configuration", "Load Configuration", "Save Configuration", "Update Device", and "Software Preferences"; and "Datalogger Setting" with options like "Configuration Setting", "Download Data", and "Date & Time Setting". The main content area is titled "Modbus Setting" and contains a sub-section "IDs List". Below this, there is a text instruction: "Insert ID of Modbus Slaves to capture. Only if use Sniffer Datalogger." A table with one column and two rows is shown, with the first row containing the number "1" and the second row containing the number "3". To the right of the table are three buttons: "Insert ID", "Cancel ID", and "Clear List IDs". The "Insert ID" button is currently active, and a small input field next to it contains the number "3".

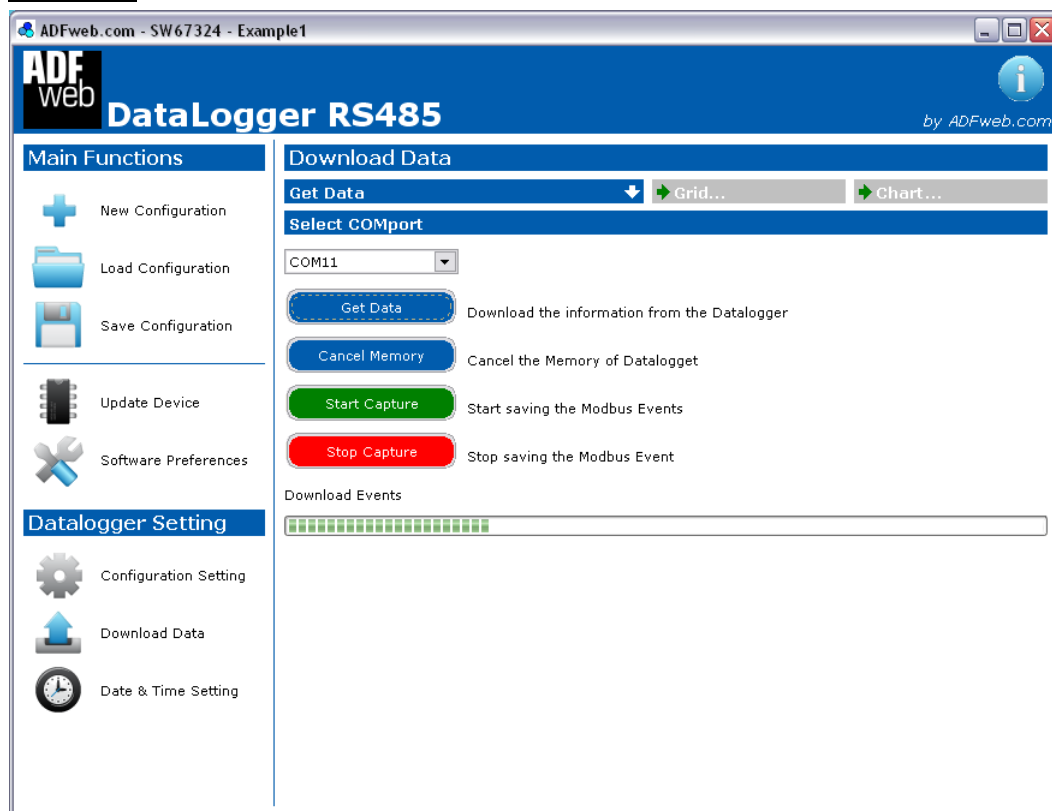
This section is used only if the Datalogger is set like 'Sniffer' or "Slave + Sniffer".

In the left list there are the IDs of the slaves that the DataLogger sniffs.

It is possible to define up to 247 IDs.

DOWNLOAD DATA:

By pressing the "**Download Data**" button it is possible to download the stored data of the DataLogger and see them in a grid.

GET DATA

After selecting the correct COM port, by pressing the "**Get Data**" button the software downloads the data from the DataLogger.

If the "**Cancel Memory**" button is pressed, the entire memory of DataLogger is cleared.

It is possible to stop the capturing of data by pressing the "**Stop Capture**" button, or resume by pressing the "**Start Capture**" button.

GRID

ADFweb.com - SW67324 - Example1

ADFweb DataLogger RS485 by ADFweb.com

Main Functions

- New Configuration
- Load Configuration
- Save Configuration
- Update Device
- Software Preferences

Datalogger Setting

- Configuration Setting
- Download Data
- Date & Time Setting

Download Data

Grid

Index	Date Time	Slave ID	Data Type	Address Register	Num	Data
29	29/7/2011 14.18.35.983.1	1	Holding Regi	120	15	[0] [0] [0] [0] [0] [0]
30	29/7/2011 14.18.36.392.9	1	Input Register	150	30	[0] [0] [0] [0] [0] [0]
31	29/7/2011 14.18.36.442.3	1	Coil Status	100	10	[0] [0]
32	29/7/2011 14.18.37.43.3	1	Input Status	110	1	[0]
33	29/7/2011 14.18.37.538.7	1	Coil Status	100	10	[0] [0]
34	29/7/2011 14.18.37.649.7	1	Holding Regi	120	15	[0] [0] [0] [0] [0] [0]
35	29/7/2011 14.18.38.417.6	1	Input Status	110	1	[0]
36	29/7/2011 14.18.38.589.1	1	Input Register	150	30	[0] [0] [0] [0] [0] [0]
37	29/7/2011 14.18.38.634.1	1	Coil Status	100	10	[0] [0]
38	29/7/2011 14.18.39.277.9	1	Holding Regi	120	15	[0] [0] [0] [0] [0] [0]
39	29/7/2011 14.18.39.740.4	1	Coil Status	100	10	[0] [0]
40	29/7/2011 14.18.39.787.8	1	Input Status	110	1	[0]
41	29/7/2011 14.18.40.792.9	1	Input Register	150	30	[0] [0] [0] [0] [0] [0]
42	29/7/2011 14.18.40.834.6	1	Coil Status	100	10	[0] [0]
43	29/7/2011 14.18.40.953.3	1	Holding Regi	120	15	[0] [0] [0] [0] [0] [0]
44	29/7/2011 14.18.41.146.6	1	Input Status	110	1	[0]
45	29/7/2011 14.18.41.948.6	1	Coil Status	100	10	[0] [0]

In this section there is the grid with the downloaded data.

The grid is composed of the follows:

- **"Date Time"**: is the date and time when the reply to the request is arrived;
- **"Slave ID"**: is the ID of the slave device that has replied;
- **"Data Type"**: is the type of reply;
- **"Address Register"**: is the starting address of the reply;
- **"Number of Registers"**: is the number of consecutive registers of the reply;
- **"Data"**: in this column there are the data, the value is expressed in decimal format.

By pressing the **"Save in CSV file"** button it is possible to export the data into a CSV file.

DATE & TIME SETTING:

The screenshot shows a web browser window titled "ADFweb.com - SW67324 - Example1". The page has a blue header with the "ADFweb" logo and "DataLogger RS485" text. On the left is a sidebar with "Main Functions" (New Configuration, Load Configuration, Save Configuration, Update Device, Software Preferences) and "Datalogger Setting" (Configuration Setting, Download Data, Date & Time Setting). The main content area is titled "Date & Time Setting" and contains sections for "Date & Time", "Select COMport" (set to COM11), "Set Date & Time" (with input fields for hh, mm, ss, dd, mm, yy showing 14, 51, 20, 29, 7, 11), and "Read Status Device". Below these are buttons for "Set Custom Date & Time", "Set PC Date & Time", and "Read Status Device". The status section shows: Date Time : 29/07/2011 14.51.27, Firmware Version : P.902.01, Saved Event : 506, and Used Memory : 16192 of 2147483648.

By pressing the "**Date & Time Setting**" button it is possible to update/read the DataLogger data/time and having other informations.

After selecting the correct COM port where the Datalogger is connected to the PC, by pressing the "**Set Custom Date & Time**" it is possible to set the data/time that is written in the fields upper; by pressing the "**Set PC Date & Time**" button the data setted are the ones of the PC.

By pressing the "**Read Status Device**" are read some information about the DataLogger:

- "**Data Time**": is the current data and time of the DataLogger;
- "**Firmware Version**": is the firmware version of the DataLogger;
- "**Saved Event**": are the numbers of Modbus events and some other commands saved;
- "**Used Memory**": is the number of bytes used by the datalogger for storing data.

CONNECTION SCHEME:

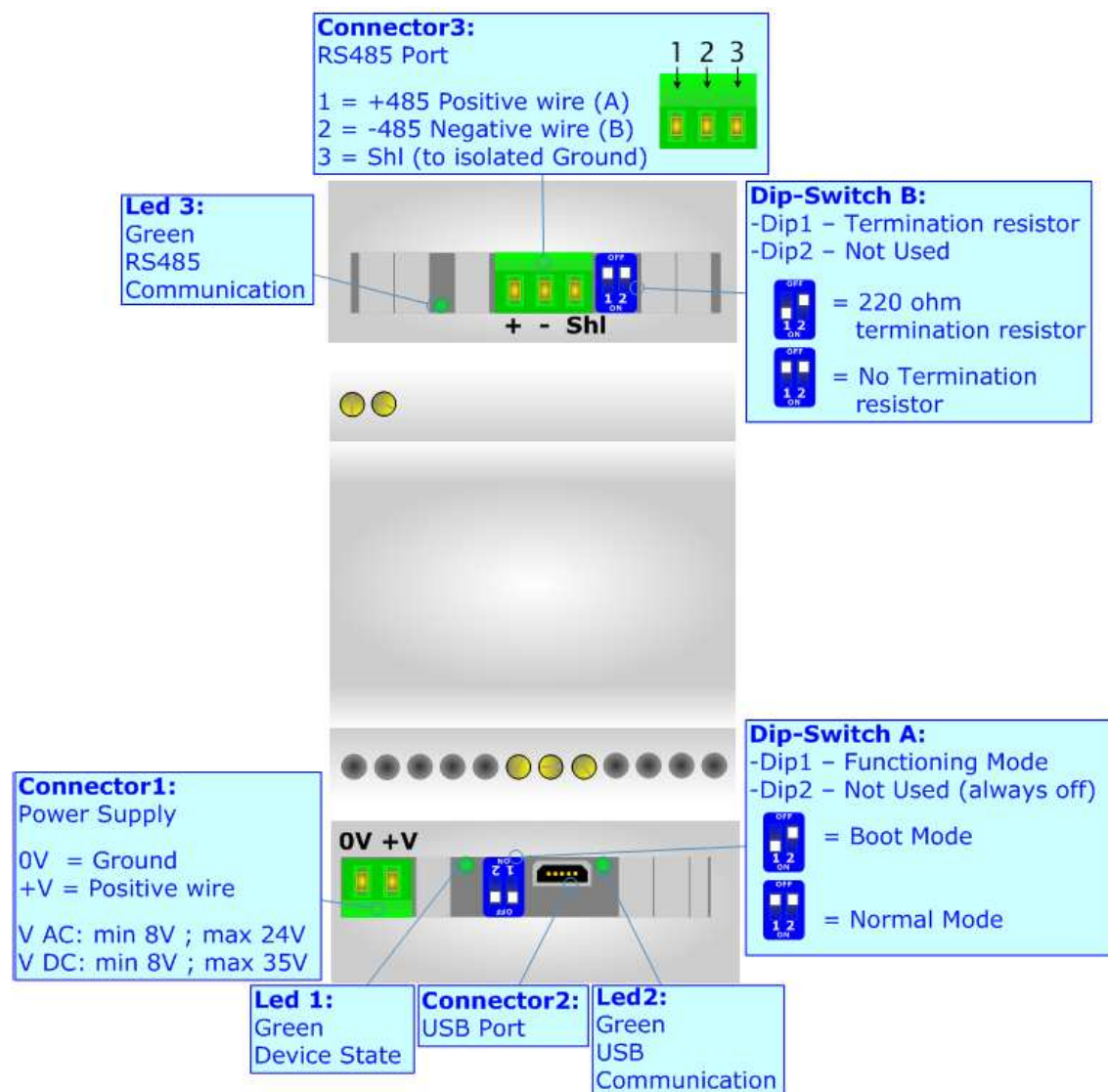
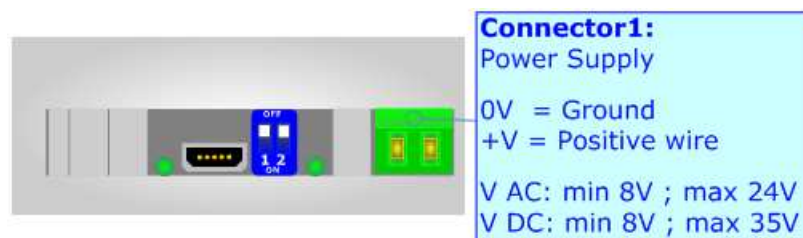


Figure 32: Connection scheme for HD67324-B2-U-485-2GB

POWER SUPPLY:

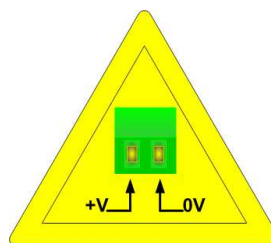
The devices can be powered at 8...24V AC and 8...35V DC. The consumption depends to the code of the device.



Consumption at 24V DC:

Device	No Load [W/VA]
HD67324-B2-U-485-2GB	1,5 max
HD67324-B2-U-232-2GB	

Caution: Not reverse the polarity power



HD67234-B2-U-xxx-2GB

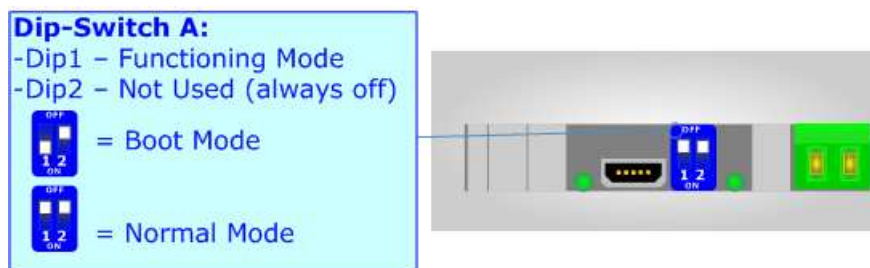
FUNCTION MODES:


The device has got two functions mode depending of the position of the Dip2 of 'Dip-Switch A':

- The first, with Dip1 in Off position (factory setting), is used for the normal working of the device.
- The second, with Dip1 in On position, is used for upload the Project and/or Firmware.

For the operations to follow for the updating (see 'UPDATE DEVICE' section).

According to the functioning mode, the LEDs will have specifics functions (see 'LEDS' section).

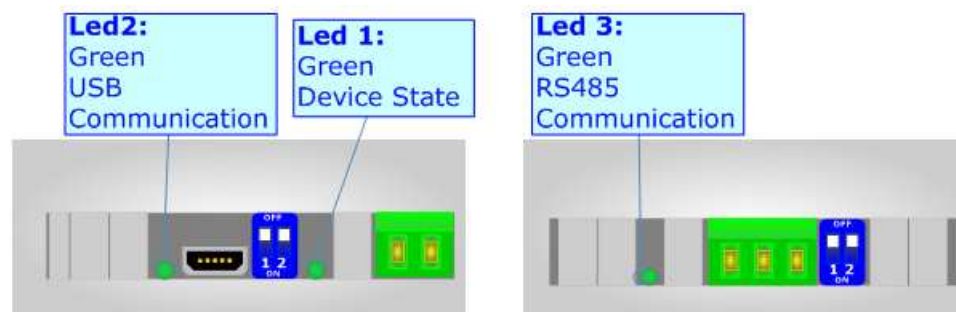


 **Note:** The "SW76324" is able to put the device in 'Boot Mode' for the updating process, and can send the device at 'Normal Mode' when these operations are finished. So "Dip1" can always be left off.

LEDS:

The device has got three green LEDs that are used to give information of the functioning status.
The various meanings of the LEDs are described in the table below.

LED	Normal Mode	Boot Mode
1: Device State	Slow flashing: normal status Very slow flashing: the memory is full, and no other data will be recorded. This function is present only if "Cyclic Memory" field is unchecked.	Fast flashing
2: USB State	Off: USB not connected or not initialized. Slow flashing: USB Connected and initialized Fast flashing: data receiving from PC	Off: USB not connected or not initialized. Fast flashing: USB Connected and initialized
3: Bus State	Slow flashing: normal status Fast flashing: data receiving from field bus	Slow flashing

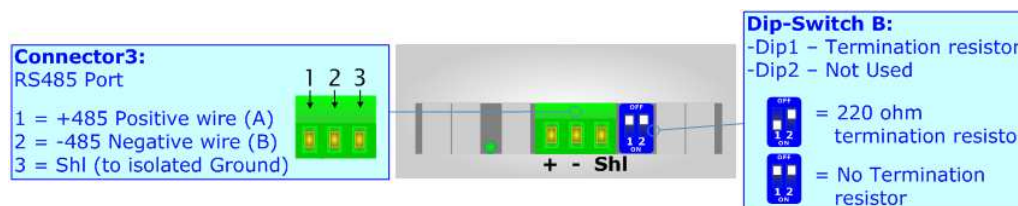


USB:

The USB connector (Connector2) is a Type-MINI AB Female. So the cable must be a Type-MINI AB Male.



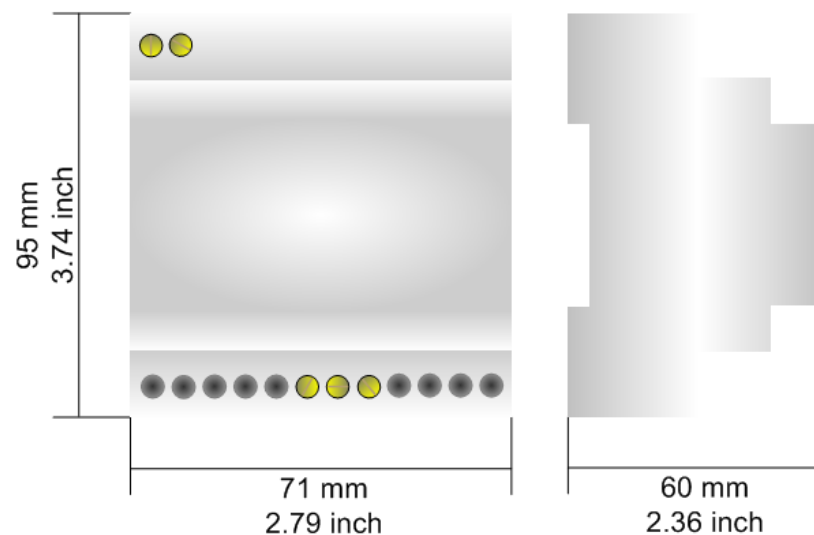
RS485:



Note:

For use the RS485 it is necessary feeding the device with the Power Supply connector (Connector1). If you connect only the USB cable the port doesn't works.

MECHANICAL DIMENSIONS:

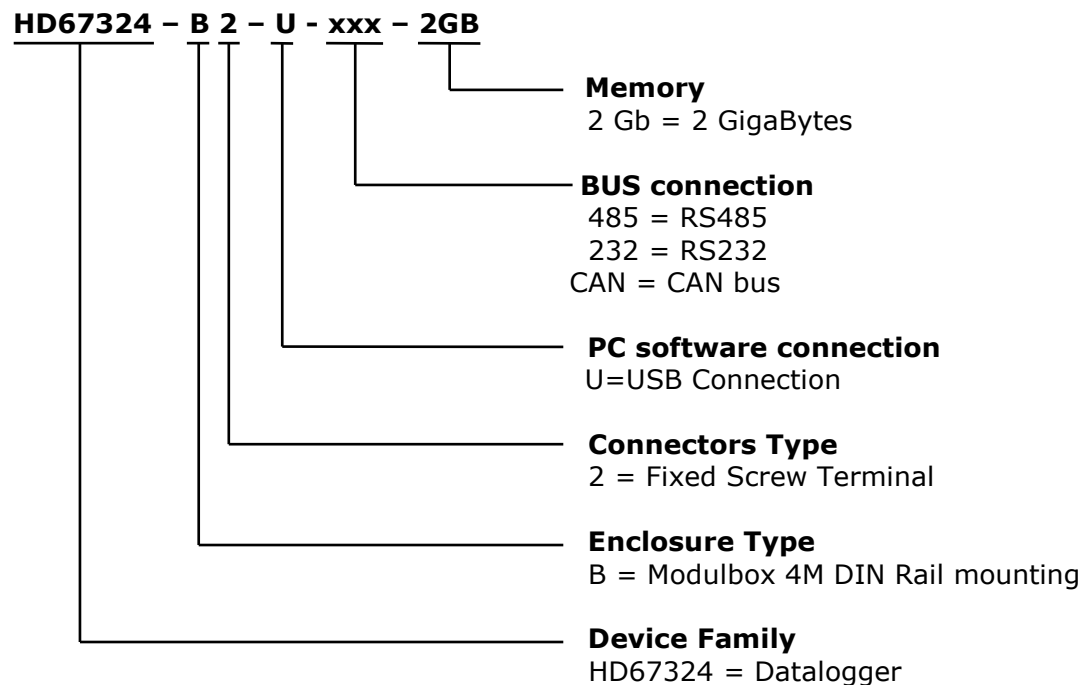


Housing: PVC
Weight: 200g (Approx)

Figure 33: Mechanical dimensions scheme for HD67234-B2-U-xxx-2GB

ORDERING INFORMATION:

The ordering part number is formed by a valid combination of the following:



Order Code: HD67324-B2-U-485-2GB	Data Logger for Modbus on RS485 with 2 Gigabytes of memory
Order Code: HD67324-B2-U-232-2GB	Data Logger for Modbus on RS232 with 2 Gigabytes of memory
Order Code: HD67324-B2-U-CAN-2GB	Data Logger for CAN bus with 2 Gigabytes of memory

ACCESSORIES:

- AC34107** - Null Modem Cable Fem/Fem DSub 9 Pin 1,5 m
- AC34114** - Null Modem Cable Fem/Fem DSub 9 Pin 5 m
- AC34001** - Rail DIN Power Supply 220/240V AC 50/60Hz – 12 VAC
- AC34002** - Rail DIN Power Supply 110V AC 50/60Hz – 12 VAC

DISCLAIMER

All technical content within this document can be modified without notice. The content of the document content is a recurring audit. For losses due to fire, earthquake, third party access or other accidents, or intentional or accidental abuse, misuse, or use under abnormal conditions repairs are charged to the user. ADFweb.com S.r.l. will not be liable for accidental loss of use or inability to use this product, such as loss of business income. ADFweb.com S.r.l. shall not be liable for consequences of improper use.

OTHER REGULATIONS AND STANDARDS

WEEE INFORMATION



Disposal of old electrical and electronic equipment (as in the European Union and other European countries with separate collection systems).

This symbol on the product or on its packaging indicates that this product may not be treated as household rubbish. Instead, it should be taken to an applicable collection point for the recycling of electrical and electronic equipment. If the product is disposed correctly, you will help prevent potential negative environmental factors and human health, which could otherwise be caused by inappropriate disposal. The recycling of materials will help to conserve natural resources. For more information about recycling this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

RESTRICTION OF HAZARDOUS SUBSTANCES DIRECTIVE



The device respects the 2002/95/EC Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (commonly referred to as Restriction of Hazardous Substances Directive or RoHS).

CE MARKING



The product conforms with the essential requirements of the applicable EC directives.

WARRANTIES AND TECHNICAL SUPPORT:

For fast and easy technical support for your ADFweb.com SRL products, consult our internet support at www.adfweb.com. Otherwise contact us at the address support@adfweb.com.

RETURN POLICY:

If while using your product you have any problem and you wish to exchange or repair it, please do the following:

- 1) Obtain a Product Return Number (PRN) from our internet support at www.adfweb.com. Together with the request, you need to provide detailed information about the problem.
- 2) Send the product to the address provided with the PRN, having prepaid the shipping costs (shipment costs billed to us will not be accepted).

If the product is within the warranty of twelve months, it will be repaired or exchanged and returned within three weeks. If the product is no longer under warranty, you will receive a repair estimate.

PRODUCTS AND RELATED DOCUMENTS:

Part	Description	URL
HD67031	Analyzer / Scanner / Sniffer M-Bus	www.adfweb.com?product=HD67031
HD67119	Converter USB 2.0 to RS485 Isolated	www.adfweb.com?product=HD67119
HD67316	CAN, CANopen, J1939, DeviceNet, NMEA2000 Analyzer	www.adfweb.com?Product=HD67316
HD67507	Gateway Modbus TCP Server to RTU Master	www.adfweb.com?product=HD67507
HD67510	Gateway Modbus TCP Client to RTU Slave	www.adfweb.com?product=HD67510